Table of Contents

Editor's Preface	vi
CHAPTER I. Quadratic Forms and Arithmetical Symbols	1
I. Elements of Quadratic Forms Theory Quadratic Forms over a Field k of Characteristic $\neq 2$	1
II. Symbols. Elements of the Theory of the Group $K_2(A)$	29
 §1. Symbols §2. The Group of the Units of p-adic Fields §3. Quadratic Forms over Discrete Valuation Fields §4. A Formula for the Hilbert "Symbol" in the Case of p-adic Fields §5. The Product Formula (Hilbert) §6. Applications. Comments §7. The Theorem of Minkowski-Hasse 	29 40 48 67 79 82 85
CHAPTER II. Methods of Logic and Algorithmic Methods in Algebra	
 §1. Countable Sets §2. The Notion of Lattice §3. The Algebra of Propositions §4. Formal Systems §5. Primitive Recursive Functions §6. Recursive Functions §7. Turing Machines §8. The Concept of Recursive (Algorithmic) Decidability §9. On the Formalist and the Constructive Point of View in Mathematics §10. Derived Terms in the Theory of Formal Systems §11. The Constructive Approach to Set Theory 	103 108 119 123 156 161 168 177 213 218 222
err and constructive Approach to Set Theory	444

CHAPTER III. Introduction to Modern Algebraic Geometry	229
 §1. Generalities §2. The Spectrum of a Commutative Ring §3. Schemes. Chevalley Schemes §4. Elements of Projective Geometry §5. The Chevalley Scheme Associated to an Integral and Irreducible Scheme 	229 235 251 263
CHAPTER IV. Theory of Topoi	271
I. General Theory of Topoi §1. Introduction §2. Some Definitions §3. Elements of Descent Theory §4. Grothendieck Topologies	271 271 278 291 304
II. Theory of Lawvere-Tierney Topoi	316
CHAPTER V. Elements of the Theory of Elliptic Curves I. Elliptic Curves Defined over the Complex Field II. Divisors	341 341 350
CHAPTER VI. Algebraic Varieties over a Finite Field	365
§1. The Zeta Function§2. Cohomology Theories§3. Weil's Diophantine Conjectures	365 370 372
CHAPTER VII. Elementary Theory of Non-Standard Real Numbers	383
APPENDIX. On Local Rings with the Approximation Property	403
INDEX	405